33
32. The isolated polypeptide of claim 27, wherein the polypeptide is according to (b).

34
33. An isolated polynucleotide encoding a polypeptide of Claim 32 or the full complement to the isolated polynucleotide.

35
34. The isolated polypeptide of claim 27, wherein the immunogenic fragment of (b) comprises at least 20 amino acids.

36
35. The isolated polypeptide of claim 27, wherein the isolated polypeptide consists of SEQ ID NO:2.

37
36. An isolated polynucleotide encoding the polypeptide of Claim 35 or the full complement to the isolated polynucleotide.

38
37. A process for expressing the polynucleotide of Claim 36 comprising transforming a host cell with an expression vector comprising the polynucleotide and culturing the host cell under conditions sufficient for expression of the polynucleotide.

39
38. A fusion protein comprising the isolated polypeptide of Claim 21.

40
39. An isolated polynucleotide comprising the polynucleotide of SEQ ID NO:1.

41
40. An isolated polynucleotide segment comprising a polynucleotide sequence or the full complement of the entire length of the polynucleotide sequence, wherein the polynucleotide sequence hybridizes to the full complement of SEQ ID NO:1 minus the complement of any stop codon, wherein the hybridization conditions include incubation at 42°C in a solution comprising: 50% formamide, 5x SSC (150mM NaCl, 15mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 micrograms/ml denatured, sheared salmon sperm DNA, followed by washing in 0.1x SSC at 65°C; and, wherein the polynucleotide sequence is identical to SEQ ID NO:1 minus any terminal stop codon, except that, over the entire length corresponding to SEQ ID NO:1 minus any terminal

stop codon, n_n nucleotides are substituted, inserted or deleted, wherein n_n satisfies the following expression

$$n_n \leq x_n - (x_n \bullet y)$$

wherein x_n is the total number of nucleotides in SEQ ID NO:1 minus any terminal stop codon, y is at least 0.95, and wherein any non-integer product of x_n and y is rounded down to the nearest integer before subtracting the product from x_n; and wherein the polynucleotide sequence detects *Moraxella catarrhalis*.

41. An expression vector comprising the isolated polynucleotide of Claim 28.

42. A host cell transformed with the expression vector of Claim 41.

43. A vaccine comprising the polypeptide of Claim 27 and a pharmaceutically acceptable carrier.

44. The vaccine of Claim 43, wherein the vaccine comprises at least one other *Moraxella catarrhalis* antigen.

45. An antibody immunospecific for the polypeptide or immunogenic fragment of Claim 27.

46. A method for inducing an immune response in a mammal comprising administration of the polypeptide of Claim 27.

47. A method of diagnosing a *Moraxella catarrhalis* infection, comprising identifying a polypeptide of Claim 27, or an antibody that is immunospecific for the polypeptide, present within a biological sample from an animal suspected of having such an infection.

48. A method for inducing an immune response in a mammal comprising administration of the isolated polynucleotide of Claim 28.